UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/555,534	05/31/2000	BARBARA ENSOLI	204.610	9400

7590 01/16/2002

ABELMAN FRAYNE & SCHWAB
150 EAST 42ND STREET
NEW YORK, NY 10017-5612

EXAMINER
STUCKER, JEFFREY J

ART UNIT	PAPER NUMBER
1648	13

DATE MAILED: 01/16/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	Examiner	Group Art Unit	

—The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address—

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication .
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Status

☑ Responsive to communication(s) filed on 8/10/01.

☐ This action is **FINAL.**

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle,* 1935 C.D. 1 1; 453 O.G. 213.

Disp sition of Claims

☑ Claim(s) 1-40, 42-48, 50, & 57-61 is/are pending in the application.

Of the above claim(s) 7, 9-40, 42-48, 50, 60, & 61 is/are withdrawn from consideration.

☐ Claim(s)_____ is/are allowed.

☑ Claim(s) 1-6, 8, & 57-59 is/are rejected.

☐ Claim(s)_____ is/are objected to.

☐ Claim(s)_____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The proposed drawing correction, filed on_____ is ☐ approved ☐ disapproved.

☐ The drawing(s) filed on_____ is/are objected to by the Examiner.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 11 9(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been

☐ received.

☐ received in Application No. (Series Code/Serial Number)_____.

☐ received in this national stage application from the International Bureau (PCT Rule 1 7.2(a)).

*Certified copies not received:_____.

Attachment(s)

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s)._____

☑ Notice of Reference(s) Cited, PTO-892

☑ Notice of Draftsperson's Patent Drawing R view, PTO-948

☐ Interview Summary, PTO-413

☐ Notice of Informal Patent Application, PTO-152

☐ Other_____

Office Acti n Summary

This Office Action is in response to the Election filed 8/10/01. Claims 1-40, 42-48, 50 and 57-61 are pending. Claims 1-6, 8, and 57-59 are examined and rejected.

Applicant's election with traverse of Group II in Paper No. 9 is acknowledged. The traversal is on the grounds that the groups are specific applications of a more generalized inventive concept, namely Tat protein in its biologically active form and corresponding DNA encoding it. This is not found persuasive because the inventive concept, biologically active Tat, is notoriously well known in the art. Therefore, the claims cannot be said to have unity of invention.

The requirement is still deemed proper and is therefore made FINAL.

The substitute specification is acknowledged. It is noted that claims were attached to the specification which are different than some of the current claims. If applicant intends to change the claims, a proper amendment to this effect must be submitted. The examined claims are those that were pending as of the amendment filed 8/10/01.

Claim 8 is objected to for failing to adhere to the requirements of the sequence rules. Applicant must append SEQ ID NOs to all instances of specific sequences in the specification and the claims. See 37 CFR § 1.821(d).

Figure 1a, panels a-e, are objected to because they are unreadable.

The specification is objected to because the word "control" is misspelled in the table on page 38.

35 U.S.C. § 101 reads as follows:

> "Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter or any new and useful improvement thereof, may obtain a patent therefore, subject to the conditions and requirements of this title".

Claims 1-6, 8, and 57-59 are rejected under 35 U.S.C. § 101 because the invention as disclosed is inoperative and therefore lacks patentable utility.

While the specification does contain prophetic statements regarding the use of the invention for preventing or treating as well as a vaccine for HIV related diseases, the specification fails to teach, nor does it describe such use. The difficulties inherent to development of an HIV vaccine or preventing infection are well

known. For the sake of clarity, some of those problems will be outlined here:

1)the extensive genomic diversity associated with the HIV retrovirus, due in large part to error prone reverse transcription of its single-stranded RNA genome,

2)the fact that the modes of viral transmission include virus-infected mononuclear cells, which pass the infecting virus to other cells in a covert form (cell to cell transmission), as well as via free virus transmission,

3)the existence of latent forms of the virus (i.e., beyond the blood-brain barrier),

5)the complexity and variation of the elaboration of the disease and,

6)the property of some portions of HIV proteins or peptides to actually cause immunosuppression or other detrimental consequences. The existence of these obstacles prevent one of ordinary skill in the art from accepting any vaccine or immunization treatment or any therapeutic regimen on its face. In order to provide proof of utility with regard to drugs and their uses, either clinical or *in vivo* or *in vitro* data, or a combination of these can be used. However, the data must be such as to convince one of ordinary skill in the art that the proposed utility is sufficiently established. See *in re Irons*, 340 F.2d 924, 144 USPQ 351 (CCPA 1965), *Ex parte*

Krepelka, 231 USPQ 746 (PTO Bd. Pat. App & Inter. 1986) and *Ex parte Chwang*, 231 USPQ 751 (PTO Bd. Pat. App & Inter. 1986).

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-6, 8, and 57-59 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

It is unclear what is meant by "biologically active". Is this the characteristics outlined by the limitations of (i)-(iv)? Additionally, it is not clear if the fragments of Tat have to be biologically active.

Further, it is not clear what "endothelial cells protein" is referring to.

It is not clear if applicant intends to claim a product or a process. There are no limitations on the structure of the protein. Attempts to claim a process without setting forth any steps involved in the process generally raises an issue of indefiniteness under 35 U.S.C. 112, second paragraph. Claim 5 is indefinite because it merely recites a use without any active, positive steps

delimiting how this use is actually practiced. It is unclear what method/process applicant is intending to encompass. *Ex parte Erlich*, 3 USPQ2d 1011 (Bd. Pat. App. & Inter. 1986). Although a claim should be interpreted in light of the specification disclosure, it is generally considered improper to read limitations contained in the specification into the claims. See *In re Prater*, 415 F.2d 1393, 162 USPQ 541 (CCPA 1969) and *In re Winkhaus*, 527 F.2d 637, 188 USPQ 129 (CCPA 1975), which discuss the premise that one cannot rely on the specification to impart limitations to the claim that are not recited in the claim. See MPEP 2173.05(q).

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-6, 8, and 57-59 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for inducing an immune response, does not reasonably provide enablement for vaccines for treating or preventing HIV related disease. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly

connected, to make and use the invention commensurate in scope with these claims.

The instant invention is not enabled for vaccines for treating or preventing HIV related disease because biologically active Tat has known pathological activities such as the various known actions disclosed on pages 3 and 4 of the specification. The specification sets forth prophetic examples of preventing or treating HIV infection. The state of the art is such that the artisan would not be confident of practicing the instant invention.

It is well known in the art that retroviral infections in general, and HIV infections in particular, are refractory to anti-viral therapies. The obstacles to therapy of HIV are well documented in the literature. These obstacles include: 1) the extensive genomic diversity and mutation rate associated with the HIV retrovirus, particularly with respect to the gene encoding the envelope protein; 2) the fact that the modes of viral transmission include both virus-infected mononuclear cells, which pass the infecting virus to other cells in a covert manner, as well as via free virus transmission; 3) the existence of a latent form of the virus; 4) the ability of the virus to evade immune responses in the central nervous system due to the blood-brain barrier; 5) the complexity and variation of the pathology of HIV infection in different individuals; and 6) the property of some portions of HIV

proteins or peptides to actually cause immunosuppression or other detrimental consequences. The existence of these obstacles establish that the contemporary knowledge in the art would not allow one skilled in the art to use the claimed invention with a reasonable expectation of success and without undue experimentation. Moreover, it is well known in the art that individuals infected with HIV produce neutralizing antibodies to the virus, yet these antibodies are not protective and do not prevent the infection from progressing to its lethal conclusion. The ability to treat and/or prevent HIV infection is highly unpredictable and has met with very little success. Applicant has not provided any convincing evidence that her vaccine is indeed useful for treating or preventing HIV related disease and has not provided sufficient guidance to allow one skilled in the art to practice the claimed invention with a reasonable expectation of success and without undue experimentation. In the absence of such guidance and evidence, the specification fails to provide an enabling disclosure for the breadth of the instant claims.

Claims 1-6, 8 and 57-59 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor, at the

time the application was filed, had possession of the claimed invention in regards to the "variants" of Tat. Applicant's specification leads one to believe that applicant was in possession of only SEQ ID NO:2 and not variants thereof.

Vas-Cath Inc. v. Mahurkar ((CAFC, 1991) 19 USPQ2d 1111), clearly states that "Applicant must convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession *of the invention*. The invention is, for purposes of the 'written description' inquiry, *whatever is now claimed.*" (See *Vas-Cath* at page 1117). The specification does not "clearly allow persons of ordinary skill in the art to recognize that [he or she] invented what is claimed." (See *Vas-Cath* at page 1116).

Applicant is reminded that *Vas-Cath* makes clear that the written description provision of 35 U.S.C. 112 is severable from its enablement provision (see *Vas-Cath* at page 1115).

With the exception of SEQ ID NO:2, the skilled artisan cannot envision the detailed structure of the encompassed peptides and therefore conception is not achieved until reduction to practice has occurred, regardless of the complexity or simplicity of the method of isolation. Adequate written description requires more than a mere statement that it is part of the invention and a reference to a potential method of isolating it. The peptide

itself is required. See *Fiers v. Revel*, ((CAFC, 1993) 25 USPQ 2d 1601) and *Amgen Inc. v. Chugai Pharmaceutical Co. Ltd.*,((CAFC, 1991) 18 USPQ2d 1016).

Furthermore, in *The Reagents of the University of California v. Eli Lilly* ((CAFC, 1997) 43 USPQ2d 1398), the court held that a generic statement which defines a genus of nucleic acids by only their functional activity does not provide an adequate written description of the genus. The court indicated that while Applicant is not required to disclose every species encompassed by a genus, the description of a genus is achieved by the recitation of a representative number of DNA molecules, usually defined by a nucleotide sequence, falling within the scope of the claimed genus. At section B(1), the court states that "An adequate written description of a DNA...'requires a precise definition, such as by structure, formula, chemical name, or physical properties', not a mere wish or plan for obtaining the claimed chemical invention." It is respectfully submitted that the facts in the instant application, while drawn to peptides, read upon the situation in *U of C v. Lilly*, drawn to nucleic acids, because the instant specification does not recite a representative number of peptides, defined by an amino acid sequence, in order to define what falls within the scope of the claimed genus of "variants" of SEQ ID NO:2

to convey to the artisan that such variants were in Applicant's possession at the time of filing.

Therefore, only peptides comprising SEQ ID NO:2, but not the full breadth of the claims meets the written description provision of 35 U.S.C. 112, first paragraph.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless --
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-6 and 8 are rejected under 35 U.S.C. § 102(a) as being anticipated by Frankel et al. (5,652,122).

The instant invention is directed to compositions comprising HIV Tat or Tat variants.

Frankel et al. teach a wild type (biologically active) variant of Tat. The various claimed limitations on the protein are known inherent characteristics of wild-type Tat. The limitations do not distinguish the structure of the instantly claimed composition from

wild type Tat. Therefore, the instant invention is anticipated by Frankel et al.

Claims 1-6 and 8 are rejected under 35 U.S.C. § 102(b) as being anticipated by Aldovinni et al. (WO 87/02989).

Aldovinni et al. teach a wild type (biologically active) variant of Tat. The various claimed limitations on the protein are known inherent characteristics of wild-type Tat. The limitations do not distinguish the structure of the instantly claimed composition from wild type Tat. Therefore, the instant invention is anticipated by Aldovinni et al.

Claims limited to instant SEQ ID NO:2 would be free of the art.

No claims are allowed.

Papers related this application may be submitted to Group 1600 by facsimile transmission. Papers should be faxed to Group 1600 via the PTO Fax Center located in Crystal Mall 1. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG (November 15, 1989).

The Group 1600 Fax numbers are: (703) 308-4242 and (703) 305-3014.

Unofficial communications may be faxed to: (703) 308-4426.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey Stucker

whose telephone number is (703) 308-4237. The examiner can normally be reached Monday to Thursday from 7:00am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Housel, can be reached on (703) 308-4027.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0196.

JEFFREY STUCKER
PRIMARY EXAMINER